

## CHALLENGES AND MANAGERIAL STRATEGIES OF COFFEE COOPERATIVES FROM THE HUATUSCO REGION IN MEXICO: THE PERSPECTIVE OF LEADERS

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### ABSTRACT

Coffee cooperatives from the Huatusco region in Mexico have played an important role in helping coffee farmers in this region maintain economic viability in the midst of the economic crisis in Mexico and the international crisis of the coffee sector over time. While this type of organization has played an important role, not all of those organizations have survived over time. Using information from interviews with leaders of five longeval coffee producer cooperatives in the Huatusco coffee region, this study aims to identify the coffee cooperatives characteristics that can explain the longevity and long-term sustainability of these organizations. Additionally, using information from interviews, we evaluated challenges that could put at risk the long-term sustainability of these associations and strategies to overcome these challenges from the cooperative leadership perspective. Findings from this study suggest that motivations behind the creation of these producer associations go beyond accessing government resources. An institutional structure where there is a democratic process behind the election of leaders, leadership positions with predefined, not long, tenure terms, and association strategies to increase member engagement could explain the longevity of these organizations. Regarding challenges the cooperatives may be facing in the future, the aging population of growers is perceived by cooperative leaders as one of the major challenges they may be facing. Increasing youth involvement in the cooperatives through training and educational activities was perceived by cooperative leaders as a strategy to overcome this challenge.

**Keywords:** coffee cooperatives, Huatusco, leadership, longevity.

### INTRODUCTION

Mexico is ranked tenth in the world in terms of coffee production and, therefore, could be considered an important player in the world coffee market (Inforural, 2021). Furthermore, coffee is one of the principal agricultural products exported by Mexico, and it is an important direct and indirect income source for about 3 million people in this country (Rojas-Herrera and Olguín-Pérez, 2018; SADER, 2021).

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The state of Veracruz is the second largest producer region in Mexico (SADER, 2019). There are ten coffee producing regions in the state of Veracruz: Chicontepec, Papantla, Tezonapa, Los Tuxtlas, Zongolica, Córdoba, Misantla, Coatepec, Atzalán, and Huatusco (Morales-Ramos *et al.*, 2021). The coffee-producing communities around the Huatusco municipality (the Huatusco coffee region hereafter) produce about 23% of the total coffee produced in this state and 6% of the total coffee produced in Mexico. The Huatusco region covers the municipalities of Huatusco, Coscomatepec, Ixhuatlán del Café, Totutla, Tlaltetela, Zentla, Tenampa, Comapa, Tlacotepec de Mejía, Sochiapa and Tomatlán (Morales-Ramos *et al.*, 2021). About 80% of the coffee farmers in this region have less than two hectares in production, which suggests the majority of producers in this region are considered small-scale producers (Rojas-Herrera and Olguín-Pérez, 2018).

Just like in other coffee-producing countries, cooperatives and producer associations in Mexico have played a major role in helping small farmers increase marketing opportunities and economic stability by obtaining better prices when selling coffee through these associations (Bacon, 2005; Wollni and Zeller, 2007; Rodríguez-Padrón *et al.*, 2012). However, there are some producer associations that have been created with the main goal of accessing government resources rather than providing marketing opportunities to coffee producers. This has been suggested to occur in Mexico and other coffee supply regions (Ruben and Heras, 2012; Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018).

Cooperatives in the context of coffee production in Mexico can be defined as an association of coffee producers, where producer members can sustain ownership of the association and maintain their membership by selling coffee through the cooperative and fulfilling other secondary responsibilities (Arana-Coronado *et al.*, 2019). The principles of solidarity, a common interest shared among the membership, and the purpose of satisfying individual and collective needs through economic and social activities are key elements of cooperatives in Mexico (Cotler, 2020).

Between 1958 and 1993, the Mexican Institute of Coffee (Instituto Mexicano del Café, INMECAFE) played an active role in purchasing, processing, marketing coffee, and providing subsidies to coffee growers, therefore promoting the production of coffee among small and medium-sized farmers (Rojas-Herrera and Olguín-Pérez, 2018; Arana-Coronado *et al.*, 2019). At the beginning of the 1990s, INMECAFE was disintegrated due to various reasons, including Mexico's macro-economic crisis and the international crisis of the coffee sector, with the latter causing very low coffee prices, even below costs of production, paid to farmers (Rojas-Herrera and Olguín-Pérez, 2018; Arana-Coronado *et al.*, 2019; Ramos-Rivera *et al.*, 2021). The international crisis in the coffee sector was due to the liberalization of the coffee market (this is, the disintegration of the International Coffee Agreement), which contributed to increased coffee supply worldwide and market concentration in the coffee roasting and trading industries, ultimately hurting economically coffee farmers (Bacon, 2005; Ramos-Rivera *et al.*, 2021).

Like in other regions in Mexico, the coffee farmers in the Huatusco region were left facing economic uncertainty related to where to sell and how to guarantee a fair price for their coffee after the disintegration of INMECAFE in a market environment with low prices. In this region, the government gave some producers the opportunity to purchase INMECAFE processing facilities through producer organizations (Rojas-Herrera and Olguín-Pérez, 2018). This opportunity incentivized the creation of producer organizations with a legal structure to specifically access government-owned processing facilities and overall government resources. In this context, producer organizations in the Huatusco region were created in order to get access to the infrastructure for coffee processing formally owned by the government (Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018).

In the early 2000s, there was a second crisis in the coffee sector; a drastic decline in coffee prices affected the profitability of coffee growers in Mexico, including coffee producers in the Huatusco region. This situation generated organized protests from growers in this region, demanding support from the government to obtain better coffee prices and marketing opportunities. As a result, the government promised financial aid to be distributed to coffee growers through producer organizations. This situation motivated the creation of additional producer organizations to access government financial aid. At the same time, coffee producer associations were created whose main goal was to add value to coffee, as a strategy to manage coffee prices instability in the international market. These cooperatives had the main goal of managing prices and marketing risk through added value strategies such as commercializing coffee with the Fairtrade® (fairtrade hereafter) and organic certification labels. For those organizations, access to government financial aid was a means and not a goal. About 75 % of the cooperatives created in the 2000s in this region had the main goal of accessing government financial aid (Rojas-Herrera and Olguín-Pérez, 2018).

Previous studies suggest producer organizations created with the main purpose of accessing government financial aid were not likely to be sustainable in the long run because they were created to obtain government benefits without a long-term plan for the organization (Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018). Additionally, previous studies suggest that only a small percentage of the coffee cooperatives in the Huatusco region created to facilitate coffee producers access to government resources are still active (Rodríguez-Hernández *et al.*, 2016). This might suggest that the mission of these producer associations, as well as producer engagement with them, could impact the longevity and long-term sustainability of coffee cooperatives in Mexico.

Other studies have suggested that factors influencing the long-term sustainability of coffee cooperatives in Mexico are member engagement with these producer associations, associations offering benefits to members that go beyond better prices (for example, funding, supplies, technical assistance), clear and enforceable association rules related to member responsibilities and benefits, equitable member participation, strong relationships with buyers and other individuals in the coffee value chain, and

youth interest in continuing coffee production (Rodríguez-Hernández *et al.*, 2016; Ramos-Rivera *et al.*, 2021).

According to the Mexican Tax Administration Service (SAT), there were 85 registered coffee producer associations from the Huatusco region with a cooperative focus in 2017. Nonetheless, according to Rojas-Herrera and Olguín-Pérez (2018), only about 24 or about 28 % of those listed by the SAT were active. Rojas-Herrera and Olguín-Pérez (2018) suggested that 61 of the 85 coffee cooperatives listed have disintegrated for various reasons, including that the cooperatives were created to receive government resources, and therefore as soon as they received those resources, they were disintegrated. This study also suggests that in 2011 about half of the coffee producers in this region were members of a producer organization with a formal business structure. Overall, there are no official numbers of producer associations in the Huatusco region. The only numbers are unofficial numbers provided by previous research (Rojas-Herrera and Olguín-Pérez, 2018).

Given the unique history of the coffee producer associations in the Huatusco region, the various motivations related to the creation of these associations, and the relative importance of coffee production in Huatusco, in this publication, we investigate the characteristics of coffee cooperatives that could explain the longevity and long-term sustainability of these cooperatives. Additionally, this study evaluates the challenges that may put at risk the long-term sustainability of these associations and strategies to overcome those challenges from the cooperative's leadership perspective. We used information from semistructured interviews conducted with leaders of five coffee cooperatives in the Huatusco region in January 2019 to accomplish this study's objective.

In this study, we focus on the institutional structure of coffee cooperatives (e.g., cooperative's foundational mission, members' responsibilities, cooperative responsibilities with members, distribution of profits) and its relationship with the longevity and long-term sustainability of these producer associations. We hypothesized the institutional structure, and the relationship between cooperative members and the cooperative leadership could help explain the sustainability of these associations (Mestries-Benquet, 2017). Specifically, we hypothesized that systems of governance that operate transparently (e.g., institutional structures defined by members that promote equitable participation of members) positively influence the longevity and sustainability of coffee cooperatives. Additionally, we considered that the strengthening of the member-cooperative relationship through the association's ability to offer tangible (e.g., higher prices, technical assistance, low-cost inputs) and intangible benefits (e.g., a sense of belonging, pride) could explain the longevity and long-term sustainability of coffee cooperatives (Rodríguez-Hernández *et al.*, 2016).

## MATERIALS AND METHODS

In January 2019, we conducted semistructured interviews with leaders of five coffee cooperatives operating in the Huatusco region. There were a few characteristics considered when selecting the coffee cooperatives to be invited to participate in the

study, including specialization in coffee production and marketing, and years in business. Specifically, cooperatives in business for more than 15 years were selected. Similar to previous studies involving coffee producers and cooperatives (Hernández-Sánchez and Travieso-Bello, 2021; Martínez-López *et al.*, 2021, Ramos-Rivera *et al.*, 2021), the final cooperatives included in the study were selected using a convenience sample approach (Otzen and Manterola, 2017) based on cooperative leaders' willingness to participate in the interviews and cooperative's characteristics (i.e., years in business) that align with the objectives of the study. Given the sampling approach taken in this study, it is important to acknowledge that findings cannot be generalized to the population of cooperatives in the Huatusco region. Nonetheless, findings in this study could unveil cooperative characteristics that should be evaluated when assessing the long-term sustainability of a representative sample of coffee cooperatives in this region and conducting a quantitative rather than qualitative analysis.

The interview instrument was divided into eight sections related to 1) Profile of the leader participating in the interview (e.g., position in the organization, years involved with the cooperative); 2) Cooperative general information (e.g., foundation year, number of members, institutional structure, services provided to members); 3) Producer member characteristics (e.g., average farm size, typical production practices, certifications, member responsibilities with the cooperative, member-cooperative relationship); 4) Financial information (e.g., cooperative investments, payment times, financial aid provided to members); 5) Cooperative employees (i.e., number of employees, level of involvement with the cooperative); 6) Cooperative infrastructure (i.e., infrastructure and equipment owned by the cooperative); 7) Marketing (e.g., buyers, trade terms); and 8) Cooperative challenges and opportunities. No questions related to the demographic characteristics of interview participants were asked to further protect the confidentiality of participants, given that we were only collecting information from a small number of cooperative leaders. Interview protocols were acknowledged by the University of Tennessee Institutional Review Board (IRB) (UTK IRB-18-04879). A copy of the interview instrument is available from the authors upon request.

We use a qualitative research approach to analyze information from semistructured interviews. Qualitative research is useful when learning about actual individuals' perceptions and experiences related to specific situations (Bruce *et al.*, 2019; Martínez-López *et al.*, 2021). Notes from the researcher who conducted the interviews were coded and analyzed. Similar to Bruce *et al.* (2019), the coding process was completed by the researcher who conducted the interviews; the coding process included three readings of the notes. The initial reading identified general themes, the second reading identified important themes common across all cooperatives, and the third reading reclassified themes into general themes and sub-themes common across all five cooperatives included in this study.

## RESULTS AND DISCUSSION

### Interviews findings

In this section, we provide information about the characteristics of the five coffee cooperatives included in this study, the history of these cooperatives, and their institutional characteristics. We specifically discuss the characteristics common to all cooperatives that could help explain their longevity and long-term sustainability. Additionally, we discuss association leaders' perceptions of challenges faced by their cooperatives, and strategies to overcome those challenges.

### Cooperatives' General Characteristics

The cooperatives included in this study have been in business for anywhere between 16 and 32 years (Table 1). The size of the cooperatives in terms of producer members is between 17 and 900 (Table 1). The size of the cooperatives in terms of the number of employees ranges from 2 to 54 employees (Table 1). On average, producer members of these cooperatives were small, with an average farm size of producer members ranging from 3 to 5 hectares (Table 1). All the producer cooperatives focus on purchasing, processing, and marketing coffee from producers. Other services provided by these cooperatives to their members include technical assistance, access to low-cost inputs, and providing access to government resources (Table 1).

### History

The history of the coffee cooperatives could help us understand the motivations related to the creation of the organizations. As suggested by previous studies (Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018), these motivations could

**Table 1.** Summary of coffee producer association characteristics.

ID	No. of employees	No. of producers selling coffee	Average farm size of members (ha)	Foundation year	Services offered to coffee producers
A	2	17	5	2000	Coffee purchase, processing, and marketing. Technical assistance
B	4	350	2	2006	Coffee purchase, facilitate coffee producer access to government resources, producer access to certification, and technical assistance
C	54	1,324 (900 were actively selling coffee through the cooperative in 2019)	1.8	1991	Coffee purchase and marketing, access to certification, technical assistance, and health education
D	9	26	2.5	1990	Coffee purchase and marketing, access to certification, access to low cost inputs (compost, coffee plants)
E	9	276	3	2008	Coffee purchase, processing, and marketing, access to government resources.

have an impact on the longevity and long-term sustainability of producer associations. Cooperative leaders were asked about the history of their organization, including the year the cooperative was established, the number of producer members when the cooperative was established, motivations for creating it, and services provided to their members when the cooperative was created. We identified common themes related to the historical context (e.g., coffee market crises) in which these cooperatives were created and motivations related to the creation of these cooperatives. We complemented this analysis with a word frequency count procedure that helped us identify the words that cooperative leaders were using more often in each section of the interview instrument using a Microsoft® Word® macro. This information allowed us to identify themes that were repeated more often by the leader and were common across cooperatives.

Cooperative A was legally established in 2000 with 27 producer members. This cooperative was created in the context of the international coffee crisis with low prices that did not cover the producer's cost of production. The goal of this cooperative was to find marketing opportunities to add value to coffee production and obtain higher prices. They started the organic certification process in 2002 and obtained full organic certification in 2005. In 2002, they negotiated access to a privately owned coffee mill, aiming to add value by processing the coffee they were gathering from farmers. Specifically, they rented the coffee mill facilities in exchange for their labor on the land owned by the coffee mill owner. Between 2007 and 2008, they obtained government funding to purchase the coffee mill, improve the mill facilities, and purchase a tractor and a vehicle. They distributed the ownership of the association infrastructure equally among members. They established that members could only sell their shares if 90% of the members agreed with the sale and the buyer was a family member or descendent and not an individual outside of the members' circle.

Cooperative B was founded in August of 2006 to help 1300 coffee producers overcome challenges related to low prices through organic and fairtrade certifications allowing them to access price premiums in international markets. The cooperative used to aggregate coffee in various points across the Huatusco region. Currently, they aggregate coffee in a single location to facilitate the logistics of aggregation.

Cooperative C and Cooperative D were established in 1991 and 1990, respectively. When cooperatives C and D were legally established, they had 91 and 32 members, respectively. These cooperatives were created in the context of the disintegration of INMECAFE (the Mexican Institute for Coffee), while looking for opportunities to increase marketing opportunities for growers, obtain higher coffee prices for growers, provide technical assistance, and increase coffee grower profitability. The legal structure of these organizations was determined by government requirements to form this type of organization to access government resources, including the ability to acquire wet and dry coffee mills at a low cost. Both cooperatives pursued organic and fairtrade certifications in search of higher coffee prices, lower production costs, and satisfying a market interested in coffee produced responsibly and with fewer chemical inputs.

Cooperative E was founded in 2008 with six producers. This cooperative is different from the other cooperatives included in this study, since it was founded after the international coffee price crisis and that it focuses on processing and marketing coffee to the national markets and not international markets. This implies that Cooperative E was less focused on producing high-quality coffee since the quality of coffee demanded in Mexico is not as high as that for international markets. Furthermore, this cooperative also purchases other agricultural products from farmer members, including macadamia nuts.

Four of the five coffee cooperatives presented in this study were created in the middle of an economic crisis in the Mexican coffee sector. Furthermore, these four cooperatives aimed to help producers to get access to better prices with added value strategies through certification processes. It seems that access to government resources played a role in the creation of these cooperatives, but it was not its ultimate goal. This suggests that the longevity and long-term sustainability of these organizations could be partially explained by the motivation of these organizations related to providing members with better market conditions, such as better prices or trade terms. Nonetheless, as suggested by previous studies (Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018), cooperatives offering better market conditions as the only benefit provided to its members may pose a risk to the long-term sustainability of coffee cooperatives. This is because, when the associations are unable to fulfill the promise of better market conditions, members are likely to sell coffee to other buyers and stop engaging with these producer cooperatives (Arana-Coronado *et al.*, 2019). It is important to note that all five cooperatives included in this study provide multiple services to their members, including technical assistance, access to government resources, access to low-cost inputs, and health education. In the next section, we explore the institutional characteristics of coffee cooperatives, and the relationship between these producer associations and their members as factors that could explain the longevity and long-term sustainability of the coffee cooperatives included in this study.

### **Institutional Characteristics and Challenges**

In this section, we will describe some institutional characteristics related to members responsibilities, cooperative responsibilities with members, distribution of profits, decision-making processes, and leaders perceptions related to factors that could put at risk the relationship between the cooperative and its members. We identified common themes related to institutional characteristics and challenges. As explained in the previous section, we complemented this analysis with a word frequency count procedure that helped us identify the words related to these topics that cooperative leaders were using more often. This information was used to identify themes that were repeated often by the leader, and were common across cooperatives.

Cooperative A had a total of 17 members in 2019. Members have the responsibility to sell at least a percentage of their coffee produced to the cooperative. This percentage



is established during a members' meeting. For example, in 2015, cooperative members were expected to sell 90 % of their production through the cooperative (Mestries-Benquet, 2017). Members also have to contribute their labor to the cooperative. Specifically, they need to help load and unload coffee from the field into the cooperative facility, volunteer at a field in an educational center owned by the cooperative, and watch the coffee dry mill overnight (Mestries-Benquet, 2017).

The cooperative facilitates the organic certification process for its members, provides technical assistance to members, and markets their coffee. Cooperative profits are distributed between members, cover administration and marketing fees, and a percentage of profits is reinvested in the infrastructure owned by the cooperative (Mestries-Benquet, 2017). The cooperative board includes the president, secretary, and treasurer. These positions are elected every two to three years. Additionally, there is an association legal representative who is not able to make decisions without consulting association members. Decisions are made through a democratic process during association meetings where all members participate.

Cooperative A leadership believes that some of the factors negatively influencing the relationship between members and the cooperative are low coffee prices, and payment times. The cooperative does not have the ability to fully pay farmers at the time they deliver their cherry coffee to the cooperative. The cooperative leadership believes that it is difficult to maintain producer loyalty when they have to wait to obtain payments for their coffee, and when producers have the opportunity to obtain better selling terms if they sell coffee to other buyers outside of the cooperative, who usually offer full payment at the time of sale.

Cooperative B leadership indicated the cooperative had 600 members in 2019, but only 350 were actively selling coffee through the cooperative. Members have to sell at least between 25 and 30 percent of their total production to the cooperative and participate in annual meetings. The cooperative is responsible for facilitating member access to government programs, providing technical assistance, facilitating certification, providing low-interest loans through the cooperative, and guaranteeing the purchase of members' coffee. A percentage of the cooperative profits is distributed to the members. The rest of the profits are used to fund the certification process and pay the association debt.

When the cooperative first started, they focused on purchasing coffee to reach a certain volume without a purchasing contract. They acquired debt to purchase coffee from members and alleviate the late payment problem, but due to the lack of buying contracts, the cooperative cash flows have not been enough to fully service the debt. Cooperative B leadership positions, including the president, secretary, and legal representative, are elected through a democratic process by members with one member one vote rights. Leadership positions have two to three-year terms. The leadership of this cooperative believes the main factor putting at risk the relationship between the members and the cooperative is the lack of members' commitment. It is hard to gain farmers' commitment because sometimes the cooperative does not have the working

capital to purchase all the coffee members are willing to sell through the cooperative. Cooperative C had a total of 1324 members in 2019, although only 900 members were actively selling coffee through the cooperative. Members have to sell at least 75 % of their production to the cooperative, although this requirement is not always enforced. This cooperative provides technical assistance to its members, gives them access to fairtrade and organic certification, and gives them training related to access to government resources. Furthermore, they provide education on healthy living to members and their families. The cooperative profits are used to pay for the certification process, provide technical assistance to members, and invest in maintaining the infrastructure owned by the cooperative, which is the coffee mill. Cooperative C leadership positions (president, treasurer, legal representative) are rotated every four years. The leadership of this cooperative believes the main factors putting at risk the relationship between leadership and their members include payment times to members and members' understanding that the role of the cooperative goes beyond purchasing their coffee and includes improving the wellbeing of their households.

Cooperative D had a total of 26 members in 2019, with 16 members classified as founding members or type A members and 10 of them classified as type B members. The type A members own cooperative shares, have the option of becoming part of the board of the cooperative, have access to organic and fairtrade certifications, have access to a free limited amount of compost produced by the cooperative, and have access to coffee plants at a discounted price. The type B members have access to certification and marketing services. The type A member's responsibilities include attending monthly and extraordinary meetings and selling 100 percent of their coffee through the producer association. A percentage of the cooperative profits is distributed to the members, and a percentage of the profits is reinvested in the cooperative infrastructure. The portion of profits retained by the cooperative varies depending on the needs. For example, the cooperative purchased a coffee mill facility formerly owned by the government using the profit contributions of members.

The cooperative's responsibilities to its members include purchasing their coffee and informing members about the financial situation of the organization on a regular basis. The cooperative offers other services to nonmembers, such as plant sales and access to the sugar and coffee wet mill for a fee. The cooperative legal representative is elected every two years. The representative's two-year term might be extended depending on performance.

Cooperative D leadership believes lack of transparency about the cooperative activities, lack of members sense of belonging, and allowing organization leaders to stay for long terms in leadership positions are risk factors to the relationship between the cooperative and its members.

Finally, Cooperative E had a total of 10 founding members who invested capital in the cooperative. All these members are medium size and large coffee growers. There are additional 266 members that only sell coffee to the cooperative, and are able to get access to government resources through the cooperative. Members do not have to sell

a minimum percentage of the coffee production. There are no specific responsibilities of the cooperative members. The cooperative responsibilities to its members include purchasing their coffee, subject to demand, and helping them access government economic resources. Cooperative profits are used to pay employees and other operational expenses, including coffee bags and utilities. The legal representative of the cooperative has a 5-year term. Cooperative E leadership believes that growing the size of the cooperative in terms of membership might put at risk the transparency related to the way they facilitate producer access to government resources. They believe that maintaining leadership with ethical principles might be the strategy to follow in order to grow the cooperative size in terms of the number of members while maintaining transparency within the organization.

Some of the institutional characteristics common to these cooperatives that could explain the longevity and long-term sustainability of these producer associations are those related to the governance structure of these organizations. Specifically, leadership positions that have predefined, not long, tenure terms, established democratic processes that allow members to participate in decisions, and that members have clear responsibilities with the cooperative could explain the longevity of these associations. Additionally, services provided by the cooperatives to members that go beyond purchasing their coffee or offering better prices could also explain the longevity of these associations.

These findings are consistent with previous research findings suggesting a good system of governance, equitable participation of members, and coffee cooperatives offering tangible and intangible benefits could impact the longevity of these organizations (Rodríguez-Hernández *et al.*, 2016; Rojas-Herrera and Olguín-Pérez, 2018). A unique finding of this study is the potential correlation between the establishment of predefined, not long, tenure terms of leadership positions and the longevity of coffee cooperatives.

Regardless of efforts the coffee cooperatives presented in this study have made to engage members with the organization, just as suggested by previous studies, most of them perceive the lack of members' engagement as of the factors putting at risk the long-term sustainability of these associations (Rodríguez-Hernández *et al.*, 2016). Farmers' trust, commitment, loyalty, and sense of belonging to the cooperatives, and overall reciprocal cohesion between farmers and the leadership, are attributes that several studies have identified as relevant for the development of stronger agricultural cooperative organizations and the improvement of performance (Hansen *et al.*, 2002; Ruben and Heras, 2012; Mujawamariya *et al.*, 2013; una and Wilson, 2015).

One of the disadvantages of coffee cooperatives over local buyers is that coffee cooperatives are not able to fully pay the farmer harvest/coffee delivery time, while local buyers, who offer lower prices on average can (Bacon, 2005; Mujawamariya *et al.*, 2013; Milford, 2014; Luna and Wilson, 2015; Arana-Coronado *et al.*, 2019). The inability of cooperatives to fully pay farmers at harvest time is exacerbated by one cooperative that reported problems servicing its debt. The failure to provide full payment to

farmers at delivery time negatively impacts farmer loyalty and engagement with the cooperative, according to the perceptions of cooperative leaders.

In general, cash shortage at harvest time is problematic for farmers and cooperatives since farmers will be induced to side-sell more coffee to other local buyers than they otherwise would, and cooperatives will collect less volume and reduce their bargaining power. All this will ultimately affect small-scale coffee producers' profitability and engagement with the cooperative. It is worth noticing that out of the five cooperatives interviewed, each has different requirements regarding the portion of the total coffee production (varying from 0 to 100%) that members are expected to sell through the cooperatives they are affiliated with. This policy may or may not be related to the level of cash cooperatives have at harvesting time, which could ultimately affect their ability to pay farmers and maintain member engagement with the cooperative.

#### **Perceptions of future challenges and strategies to overcome those challenges**

Cooperative leaders were asked about their perceptions of future challenges their cooperatives may face and the plans they have in place to overcome those challenges. We identified common themes and complemented this analysis with a word frequency count procedure. We identified words that were often repeated by leaders and expanded on the context in which these words were used.

Cooperative A leadership believed the major challenges this cooperative was facing in 2019 and were likely to face in the future include the lack of transparency among the leadership of intermediaries or organizations aggregating coffee from various cooperatives to be exported, which could put at risk marketing opportunities. They believe an aging population of coffee growers and the lack of motivation of the next generation producers to stay in the region might put at risk the long-term sustainability of this cooperative. Also, leaders of this cooperative believe that educating the next generation in the technical aspects of coffee production, and in ethics and management, might help overcome the challenges mentioned above. Furthermore, as mentioned by Mestries-Benquet (2017), the leadership of Cooperative A believes reinvesting part of the cooperative profits to create their own lending or funding mechanisms will give them a sense of independence from issues related to lack of transparency and management of intermediary organizations.

Cooperative B leadership believes the major challenges faced in 2019 are those likely to continue in the future. This is, their capacity to pay the acquired debt, members' commitment to sell their coffee to the cooperative, and the aging population of coffee growers. They do not have a clear idea of strategies to overcome those challenges. They believe government support is explicitly needed to help them with refinancing the debt they acquired, which was the main challenge they were facing in 2019.

According to Cooperative C leadership, the most important challenges this cooperative may face in the future include an aging population of coffee producers and a younger generation of potential producers migrating to the cities. Additionally, they perceive climate change as a major threat that could put at risk coffee production in the region

but not the long-term sustainability of the cooperative. They believe that if climate change forced growers to produce a different crop to coffee, the cooperative would still exist to improve the wellbeing of its members and their families. They plan to increase youth involvement with the cooperative activities to motivate them to stay in the region producing coffee and other crops.

The major challenges perceived by Cooperative D leadership include low selling prices, low productivity due to coffee rust, the length of time from when they receive growers' coffee and they provide payments to growers, an aging population of coffee producers, and climate change that could impact soil fertility, coffee productivity, and quality. The leadership of this cooperative suggested a couple of strategies to overcome the aforementioned challenges, such as reducing the percentage of coffee sold in international markets and increasing the percentage of coffee sold in national markets, with a specific focus on the production of specialty coffees that are sold at premium prices.

The major challenge faced by Cooperative E, according to the leadership, is the lack of working capital to increase the association size and guarantee volume requirements for marketing, which is the cooperative's main mission, and expand marketing opportunities to growers through local specialty coffee shops. The cooperative currently owns one coffee shop and was expecting to increase the number of coffee shops in the Huatusco region and other regions in the state of Veracruz.

Although the leaders of each cooperative mentioned unique challenges, four of the five cooperatives included in this study perceived the aging population of growers as one of the major challenges they would be facing in the future. Two of these cooperatives mentioned increasing youth involvement in the cooperative to overcome this challenge, through training and educational activities.

Climate change was mentioned as a major challenge by two of the five cooperatives, but the leadership did not mention a clear strategy on how to overcome this challenge. One of the cooperative leaders believes that the cooperative role goes beyond the marketing of coffee. They believe the cooperatives play a major role in improving the living conditions of their members and their families, regardless of the types of crops they might be growing in the future due to climate change.

## CONCLUSIONS

In this article, we describe five longeval coffee producer cooperatives in the Huatusco coffee region and try to identify factors that could explain the longevity and long-term sustainability of these organizations. Additionally, we evaluate challenges that could put at risk the long-term sustainability of these associations and strategies to overcome these challenges from the cooperative's leadership perspective.

Similar to previous research findings (Hansen *et al.*, 2002; Ruben and Heras, 2012; Mujawamariya *et al.*, 2013; Luna and Wilson, 2015), this study's findings suggest farmers' trust, commitment, loyalty, sense of belonging toward cooperatives, and in general reciprocal cohesion between farmers and cooperatives' leadership, are

attributes that could be correlated with the longevity and long-term sustainability of these producer associations.

When looking at the history of these cooperatives, it seems that the motivation behind the creation of these producer associations was to guarantee the survival of coffee growers in the region and increase their economic sustainability by providing marketing opportunities through coffee quality certification processes in the midst of the Mexican and international coffee sector economic crises. It is important to notice that although the creation of producer associations was a requirement to access government resources, and it could have been the motivation for some members to join the cooperatives, none of the cooperatives' leadership mentioned accessing government resources for growers as the ultimate goal or mission of the cooperative. As suggested by Rojas-Herrera and Olguín-Pérez (2018), the motivations behind the creation of a producer association could have an impact on the long-term sustainability of the organizations, and therefore the longevity of the cooperatives included in this study could be explained in part by the motivations behind the creation of these cooperatives. Nonetheless, as suggested by Rodríguez-Hernández *et al.* (2016) cooperatives' mission is not the only factor influencing the longevity of these associations. Tangible and intangible benefits offered by coffee cooperatives motivating member engagement and good systems of governance that operate transparently are factors influencing the longevity of these producer associations (Rodríguez-Hernández *et al.*, 2016).

Regarding the cooperatives' institutional structure, particularly related to governance, results suggest that predefined, not long, tenure terms for the leadership positions, member involvement in the decision-making processes, and coffee cooperatives strategies to engage members, including establishing the minimum percentage of coffee members need to sell through the cooperative, giving additional responsibilities to members (e.g., loading coffee, supervising coffee mills) or involving their families with the cooperative through education activities not necessarily related to coffee production (e.g., health) could be correlated with the longevity of these producer associations. These findings are in line with previous research findings related to the positive impact of the inner workings of cooperatives, member engagement, and good and transparent governance systems on the long-term sustainability of these producer associations (Rodríguez-Hernández *et al.*, 2016).

Regarding the perceptions of coffee cooperative leaders about challenges their organization will be facing in the future, a common challenge faced by most of the coffee cooperatives included in this study is the aging population of cooperative members and the lack of interest of the youth in staying involved with coffee production in the Hautusco region. Previous research has identified the aging population as one of the major challenges putting at risk the long-term sustainability of coffee cooperatives in the state of Veracruz (Escamilla-Prado, 2021; Ramos-Rivera *et al.*, 2021). Like previous studies, the leaders of these cooperatives mentioned increasing the number of activities aiming to engage youth in their organizations as a strategy to overcome this challenge (Escamilla-Prado, 2021), but previous research did not discuss specific

strategies or activities cooperatives could use to engage the next generation of coffee producers in this region. It might be important for the leaders of these associations to develop a strategic plan to involve the next generation of coffee producers with their associations.

Additionally, some cooperatives identified climate change as one of the major challenges they will be facing in the future. Nonetheless, the leaders of these coffee cooperatives did not identify a clear strategy to overcome this challenge. Previous research suggests coffee producers in this region have perceived changes in temperature and precipitation cycles that are negatively impacting production volumes and disease pressure (Hernández-Sánchez and Travieso-Bello, 2021). Hernández-Sánchez and Travieso-Bello (2021) suggest some of the actions taken by coffee cooperative members to overcome challenges associated with climate change are crop diversification, planting diseases resistant varieties, and implementing soil and water conservation practices. Nonetheless, the study suggests that these actions are autonomous and reactive, implying they might be effective in the short run but not necessarily in the long run. Coffee cooperatives should be proactive in exploring measures that could help their members be more resilient to the production challenges they will be facing in the future due to climate change. The resiliency of the coffee cooperative members will ultimately impact the longevity and long-term sustainability of these associations.

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